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(54) Telecommunication system and method for wavelength-division multiplexing transmissions with a controlled separation of the outgoing channels and capable of determining the optical signal/noise ratio

(57) A multi-wavelength optical telecommunication method comprising the steps of generating at least one optical transmission signal in a predetermined wavelength band, transmitting said optical transmission signal through an optical fibre to a receiving station, receiving the optical transmission signal through a passband filter and filtering said signal to let said transmission signal alone pass, in which the wavelength

band is scanned in order to identify in said band a recognizable portion of the optical spectrum being received, thus determining, based on the operating conditions corresponding to said recognizable spectrum portion, a search range of said transmission signal within which the transmission signal is searched out and recognized based on its spectral profile.

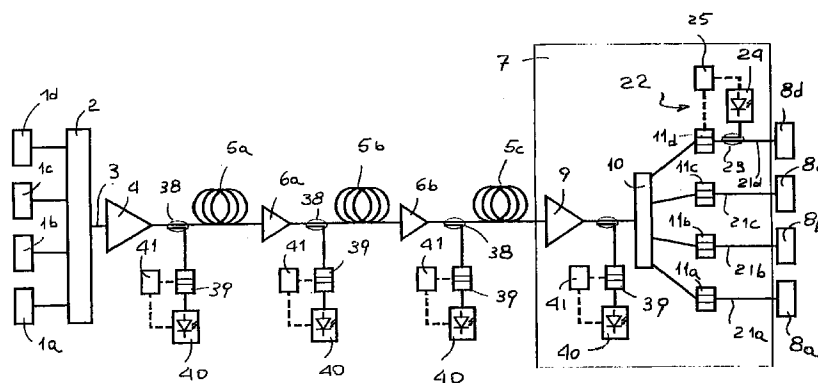


Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 95 11 8333

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	PATENT ABSTRACTS OF JAPAN vol. 14, no. 383 (E-0966), 1990 & JP-A-02 140028 (SHARP) * abstract; figures 2,5 *	1-3, 5-11,30, 33,36	H04B10/158 H04J14/02 H04B10/08
Y		4,16	
A		12-15,17	
X	--- DE-A-38 28 200 (HEIN ET AL) * column 1, line 48 - column 2, line 4; figure 1 *	1-3	
X	--- EP-A-0 604 040 (AT&T) * column 2, line 44 - column 3, line 58; figures 1,3 *	22,25, 26,28, 30,33, 34,36	
Y		23,24, 27,29, 31,35, 37,46-48	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A		1-17,44, 45	H04B H04J
X	--- EP-A-0 381 341 (AT&T) * column 7, line 9 - line 14 * * column 9, line 33 - line 44 * * figure 4 *	22,30, 32,33	
A	--- -/--	23,24	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 August 1996	Examiner Williams, M.I.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

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EUROPEAN SEARCH REPORT

Application Number
EP 95 11 8333

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	ELECTRONICS LETTERS., vol. 28, no. 3, 30 January 1992, STEVENAGE GB, pages 216-217, XP002011471 MILLER AT AL: "Wavelength-locked, two-stage fibre Fabry-Perot filter for dense wavelength division demultiplexing in erbium-doped fibre amplifier spectrum" * page 216, left-hand column, line 1 - line 10; figure 1 *	4,16,23, 24,27, 29,35,37	
Y	Database INSPEC, IEE, London, GB Seumura et al: "A newly developed adaptive wavelength tunable filter for wavelength selective optical communications systems" XP002011472 INSPEC no. 4647966 * abstract * & ECOC '93, Zurich, CH 12-16 September 1993 pages 433 - 436	31	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	EP-A-0 577 036 (CANON) * column 8, line 35 - line 41 * * column 9, line 16 - line 19 * * figures 2,3,13 *	1-3	
X	EP-A-0 554 126 (FUJITSU) * column 3, line 37 - column 4, line 14 * * column 7, line 29 - line 49 * * figures 2,9 *	18	
A		19-21, 38-43	

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The present search report has been drawn up for all claims			
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EUROPEAN SEARCH REPORT

Application Number
EP 95 11 8333

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	WO-A-90 06640 (HONEYWELL) * page 16, line 13 - line 25 * * page 19, line 24 - page 20, line 9 * * figure 6 *	18,38,39	
X	--- EP-A-0 478 391 (OKI ELECTRIC INDUSTRY) * column 3, line 3 - column 4, line 3 *	44,45	
Y	---	46-48	
X	--- JP-A-06 237 242 (FUJITSU) 23 August 1994 * figures 1-4 * & US-A-5469288 (FUJITSU) 21 November 1995	44,45	
A	--- EP-A-0 612 164 (AT&T) * abstract * -----	44,45	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
Place of search THE HAGUE		Date of completion of the search 23 August 1996	Examiner Williams, M.I.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document</p>			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid.
- namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions.

namely:

see sheet -B-

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid.
- namely claims:
- ☐ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.
- namely claims:



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EP 95 11 8333 -B-

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims 1-17,22-37:

Optical telecommunications system with controlled separation of outgoing channels based on identification of a recognisable portion of the optical spectrum

2. Claims 18-21,38-43:

Determination of the signal-to-noise ratio in an optical telecommunications system

3. Claims 44-48:

Optical telecommunications system with controlled separation of outgoing channels by means of a first, fixed, optical filter and a second, tunable, optical filter